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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,048	10/13/2000	Tae Heon Lee	AMKOR-052A	1120

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EXAMINER

NGUYEN, DILINH P

ART UNIT PAPER NUMBER

2814

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/687,048

Applicant(s)

LEE ET AL.

Examiner

DiLinh Nguyen

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16, 17, 19-26, 28-32, 34 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 17, 19-26, 28-32, 34 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/17/03, 8/14/03, 9/26/03</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 16-17, 20, 23-26, 29-32, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Okumura et al. (U.S. Pat. 5942794).

- Regarding claims 16, 25 and 31, Okumura et al. disclose a semiconductor package (fig. 5a-5b) comprising:

a chip paddle 20 defining opposed top and bottom surfaces and a plurality of sides and corners; and

at least two sets of leads extending along respective ones of the sides of the chip paddle in spaced relation thereto, each set of leads including at least two outer leads and at least one inner lead disposed between the outer leads, the inner and outer leads of each set each defining opposed top and bottom surfaces, with the bottom surfaces of the outer leads of each set each being of a first length and the bottom surface of the inner lead of each set being of a second length which is unequal to the first length;

a semiconductor chip 19 mounted to the top surface of the chip paddle and electrically connected to at least one of the inner and outer leads; and

an encapsulation material 15 covering the leadframe and the semiconductor chip 19 such that the bottom surfaces 16 of the inner and outer leads are exposed in the encapsulation material (fig. 5a).

- Regarding claims 17, 26 and 32, Okumura et al. disclose multiple sets of leads which extend along respective ones of each of the sides of the chip paddle 20 in spaced relation thereto (fig. 5b).
- Regarding claims 20, 29 and 35, Okumura et al. disclose that the first length of the bottom surface of each of the outer leads is less than the second length of the bottom surface of the inner lead (fig. 5b).
- Regarding claim 23, Okumura et al. disclose that one tie bar 9 attached to and extending from at least one of the corners of the chip paddle, the tie bar defining opposed top and bottom surfaces (fig. 5b).
- Regarding claim 24, Okumura et al. disclose that the bottom surface of the at least one tie bar 9 is exposed in the encapsulation material 15 (fig. 5a).
- Regarding claim 30, Okumura et al. disclose that the encapsulation material 15 defines a generally planar bottom surface 15a; and the bottom surfaces 16 of the inner and outer leads are each generally planar and substantially flush with the bottom surface of the encapsulation material (fig. 5a).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2814

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-22, 19, 28 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura et al. by (U.S. Pat. 5942794) in view of Applicant Admitted Prior Art (AAPA, figs. 1 and 3).

- Regarding claims 21, Okumura et al. substantially disclose all the limitations as claimed above except for the bottom surface of the chip paddle is exposed in the encapsulation material.

AAPA (figs. 1 and 3) discloses that the semiconductor package comprising the bottom surface 110 of the chip paddle is exposed in the encapsulation material 10 (fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Okumura et al. by having the bottom surface of the chip paddle is exposed, as taught by AAPA, in order to provide a high reliability and reduce complexity of implementation for the semiconductor package (figs. 2 and 3).

- Regarding claim 22, AAPA (fig. 2) discloses the encapsulation material 10 defines a generally planar bottom surface; the bottom surface of the chip paddle is generally planar and substantially flush with the bottom surface of the encapsulation material; and the bottom surfaces of the inner and outer leads are each generally planar and substantially flush with the bottom surface of the encapsulation material (fig. 2).
- Regarding claims 19, 28 and 34, Okumura et al. disclose the plurality sets of leads extending along ones of the sides of the chip paddle (fig. 5b) and it would

Art Unit: 2814

have been obvious to form the length of the outer leads exceeds the length of the inner lead (see the references: Corisis [U.S. Pat. 6271580], fig. 3 and Ando [JP 406163786] fig. 1b).

Response to Arguments

Applicant's arguments with respect to claims 16-17, 19-26, 28-32 and 34-35 have been considered but are moot in view of the new ground(s) of rejection. Please see the above new ground of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DLN



HOAI PHAM
PRIMARY EXAMINER